

CLAIMS

1. An agonist or antagonist of the GPR54 receptor for its use for treating a gonadotropin related disorder.
2. The agonist or antagonist of claim 1, where the GPR54 receptor is the protein shown in SEQ ID NO:2 or SEQ ID NO:3, or a partial protein thereof, or an ester, amide or salt thereof.
3. The agonist or antagonist of claim 1 or 2, where the GPR54 receptor is the protein shown in SEQ ID NO:2 or SEQ ID NO:3, from amino-acids 247 to 398.
4. The agonist or antagonist of claim 1 or 2, where the GPR54 receptor is the protein shown in SEQ ID NO:2 or SEQ ID NO:3, with the mutation L102P.
5. The agonist or antagonist of any one of claims 1 to 4 for its use for treating a gonadotropin related reproductive disorder.
6. The agonist or antagonist of any one of claims 1 to 4 for its use for treating hypogonadotropic hypogonadism.
7. The agonist or antagonist of any one of claims 1 to 4 for its use for treating LH and/or FSH related disorders.
8. The agonist or antagonist of any one of claims 1 to 4 for its use for treating gonadotropin-estradiol/testosterone-dependent related cancers.
9. A ligand of the GPR54 receptor for its use for diagnosing a subject's gonadotropin abnormality.

10. The ligand of claim 9 for its use for diagnosing hypogonadotropic hypogonadism.
11. The ligand of claim 10 that binds to the protein shown in SEQ ID NO:2 or SEQ ID NO:3, from amino-acids 247 to 398.
12. The ligand of claim 10 that binds to the protein shown in SEQ ID NO:2 or SEQ ID NO:3, with the mutation L102P.
13. A method for screening a compound that affects the gonadotropic axis comprising the step of assaying the compound in the presence of a GPR54 receptor.
14. The method of claim 13, for screening for a compound that affects the LH and/or FSH secretion.
15. The method of claim 13 or 14, in which the GPR54 receptor is the protein shown in SEQ ID NO:2 or SEQ ID NO:3, or a partial protein thereof, or an ester, amide or salt thereof.
16. The method of any one of claims 13 to 15, where the GPR54 receptor is the protein shown in SEQ ID NO:2 or SEQ ID NO:3, from amino-acids 247 to 398.
17. The method of any one of claims 13 to 15, where the GPR54 receptor is the protein shown in SEQ ID NO:2 or SEQ ID NO:3, with the mutation L102P.
18. A protein shown in SEQ ID NO:2 or SEQ ID NO:3, from amino-acids 247 to 398.
19. A protein shown in SEQ ID NO:2 or SEQ ID NO:3, with the mutation L102P.

20. Antibodies specific to the protein of claim 18 or 19.

5 21. An agonist or antagonist of the GPR54 receptor for its use as an addition to a treatment for the stimulation of ovulation by GnRH.

10 22. An agonist or antagonist according to claim 21, wherein the agonist or antagonist positively modulates the GnRH effect on LH synthesis stimulation.

15 23. The agonist or antagonist of claim 21 or 22, where the GPR54 receptor is the protein shown in SEQ ID NO:2 or SEQ ID NO:3, or a partial protein thereof, or an ester, amide or salt thereof.

20 24. The agonist or antagonist of claim 21 or 22, where the GPR54 receptor is the protein shown in SEQ ID NO:2 or SEQ ID NO:3, from amino-acids 247 to 398.

25 25. The agonist or antagonist of claim 21 or 22, where the GPR54 receptor is the protein shown in SEQ ID NO:2 or SEQ ID NO:3, with the mutation L102P.

30 26. A composition comprising GnRH and the agonist or antagonist of claim 5 or any one of the claims 21 to 25.

35 27. A composition according to claim 26, wherein the agonist is the fragment 45-54 of Kiss-1.

28. A composition according to claims 26 or 27, wherein the ratio of the GnRH to the agonist or

antagonist of GPR54 is in the range 10:1 to 1000:1 in Molar concentration.